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BEYER WEAVER & THOMAS LLP
P.O. BOX 778
BERKELEY, CA 94704-0778

EXAMINER	
VO, TUNG T	

ART UNIT	PAPER NUMBER
2613	6

DATE MAILED: 11/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/682,385	Applicant(s) ZHANG ET AL.	
	Examiner Tung T. Vo	Art Unit 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *03* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) has been considered.

Drawings

2. Formal drawings are required.

Specification

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by ***this invention***," "The disclosure describes," etc.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Wasserman et al. (US 5,812,791).

Re claims 1, 17, 21, and 24, Wasserman discloses a computer system comprises a readable medium including instructions for processing a compressed bitstream comprising video data, the system comprising (col. 6, lines 26-col. 7 line 24):

means (210 of fig. 2) for carrying out the step of parsing a portion of the compressed bitstream before motion compensation on video data included in the portion (fig. 4, see also col. col. 13, lines 60 through col. 17, line 9);

means (210 of fig. 2) for carrying out the step of obtaining motion information related to the video data, the motion information comprising a set of motion vectors (MOTION VECOTR DATA of fig. 4);

means (106, 110, 160, 180 of fig. 2) for storing a reference sub-region (macroblocks are identified by the parser (210 of fig. 2)) identified by the motion information in a first memory (110 of fig. 2) before performing motion compensation using the set of motion vectors (col. 10, lines 16-28);

means (175 of fig. 2) for performing motion compensation on the video data using the reference sub-region stored on the first memory (110 of fig. 3, in conjunction with memory controller 106 and 160 of fig. 3).

Re claim 2, Wasserman further discloses wherein the first memory source is an on-chip memory source (110 of fig. 12, e.g. the memory stores entire frame).

Re claim 3, Wasserman further discloses wherein storing the reference sub-region in the first memory comprises performing a direct memory access (110 and 170 of fig. 2) based on the motion vector (212, 180 of fig. 2).

Re claim 4, Wasserman further discloses wherein the second memory source is an off-chip memory source (180 of fig. 2) and the direct memory access includes accessing the second memory source (col. 10, lines 16-28).

Re claim 5,Wasserman further discloses the step of storing the motion information in the first memory (110 of fig. 2).

Re claim 6, Wasserman further disclose wherein obtaining motion information comprises extracting and decoding the set of motion vectors from the compressed bitstream (210, 212 of fig. 2; see also col. 7, lines 1-24).

Re claim 7, Wasserman further discloses wherein the time that the **reference sub-region is stored in** the first memory (110 of fig. 2) before performing motion compensation using the set of motion vectors (212 of fig. 4) comprises the time required for to complete a direct memory access to store the reference sub-region in the first memory (Control Register, mpgRegs of fig. 2)

Re claim 8, Wasserman further discloses wherein the time that the reference sub-region is stored in the first memory (110 of fig. 2) before performing motion compensation using the set of motion vectors comprises an estimated time for a processor to reconstruct one macroblock (102 of fig. 2).

Re claim 9, Wasserman further discloses wherein storing the reference sub-region further comprises storing multiple reference sub-regions (figs. 8, 10A, 10B).

Re claim 10, Wasserman further discloses wherein the multiple reference sub-regions are included in a reference window, the reference window comprising a set of reference window sub-regions (fig. 8).

Re claims 11 and 23, Wasserman further discloses the step of creating the reference window comprising the set of reference window sub-regions (figs. 8, 10B), the set of reference window sub-regions including the reference sub-region identified by the set of motion vectors (each of sub-regions has its own motion vector that is detected by motion processor (212 of fig. 2, see also cols 19-21); and storing the set of reference window sub-regions in the first memory source (col. 21, TABLES 15, 16).

Re claims 12-13, 19-20, Wasserman further discloses wherein the reference window has a trapezoidal array (rectangular array, fig. 1), wherein the motion information is the upper left window in the trapezoidal array (the motion vector processor (212 of fig. 2) determines the

motion vector of the maroblock from the left to the right, therefore, each macroblock has its own motion vector).

Re claim 14, Wasserman further discloses wherein the video data comprises a macroblock (Macroblock of fig. 1, fig. 10B).

Re claim 15, Wasserman further discloses the step of converting the motion information to an DMA instruction (host computer, 102 of fig. 2).

Re claim 16, Wasserman further discloses the step of obtaining motion information (160 and 170 of fig. 2, e.g. determining which MPEG sequence is transferred to the decoder 200 of fig. 2), from a second compressed bitstream and performing motion compensation on video data included in the second compressed bitstream (175, 210, 212 of fig. 2).

Re claim 22, Wasserman further discloses means for extracting and decoding the motion information from the compressed bitstream (200, 210, 214, 218 of fig. 2).

See also figures 12 and 13 of Wasserman for other embodiment that applies instruction programs for the claimed invention.

6. Claims 1-2, 5-13, 17-20, 21-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Oku et al. (US 6,084,637).

Re claims 1, 17, 21, and 24, Oku computer system comprises a readable medium including instructions for processing a compressed bitstream comprising video data, the system comprising (figures 1, 13, and 18):

means (2 of fig. 1) for carrying out the step of parsing a portion of the compressed bitstream before motion compensation on video data included in the portion;

means (2 of fig. 1, decoder extracts the motion vector and image data) for carrying out the step of obtaining motion information related to the video data, the motion information comprising a set of motion vectors;

means (6 of fig. 1, writing the encoded data the comprises information data, motion vectors) for storing a reference sub-region identified by the motion information in a first memory (11 of fig. 1) before performing motion compensation using the set of motion vectors;

means (4 of fig. 1) for performing motion compensation on the video data using the reference sub-region stored on the first memory.

Re claim 2, Oku further discloses wherein the first memory source is an on-chip memory source (11 of fig. 1, e.g. the memory stores entire frame).

Re claim 5, Oku further discloses the step of storing the motion information in the first memory (6 and 11 of fig. 1).

Re claim 6, Oku further disclose wherein obtaining motion information comprises extracting and decoding the set of motion vectors from the compressed bitstream (2 of fig. 1; col. 9, lines 35-45).

Re claim 7, Oku further discloses wherein the time that the **reference sub-region is stored in** the first memory (6 and 11 of fig. 1) before performing motion compensation using the set of motion vectors (4 of fig. 1) comprises the time required for to complete a direct memory access to store the reference sub-region in the first memory (fig. 17, col. 4 line 45 through col. 5, line 55).

Re claim 8, Oku further discloses wherein the time that the reference sub-region is stored in the first memory (col. 4, line 45 through col. 5, line 55) before performing motion compensation using the set of motion vectors comprises an estimated time for a processor to reconstruct one macroblock (FM1 of fig.17).

Re claim 9, Oku further discloses wherein storing the reference sub-region further comprises storing multiple reference sub-regions (fig. 14, sub-regions is reference picture area (1), (2), and (3)).

Re claim l0, Oku further discloses wherein the multiple reference sub-regions are included in a reference window, the reference window comprising a set of reference window sub-regions (fig. 30).

Re claims 11 and 23, Oku further discloses the step of creating the reference window comprising the set of reference window sub-regions (fig. 30), the set of reference window sub-regions including the reference sub-region identified by the set of motion vectors (each of sub-regions has its own motion vector that is detected by motion compensation (4 of fig. 1); and storing the set of reference window sub-regions in the first memory source (11 of fig. 1).

Re claims 12-13, 19-20, Oku further discloses wherein the reference window has a trapezoidal array (rectangular array as macroblocks, col. 4, lines 11-24), wherein the motion information is the upper left window in the trapezoidal array (the motion vector detector determines the motion vector of the maroblock from the left to the right, therefore, each macroblock has its own motion vector, which used in the MEPG encoder).

Re claim 14, Oku further discloses wherein the video data comprises a macroblock (Macroblock, col. 4, lines 10-36).

Re claim 22, Oku further discloses means for extracting and decoding the motion information from the compressed bitstream (2 of fig. 1).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Boon (US 6,415,056 B1) discloses a digital image encoding and decoding method and digital image encoding and decoding device.

McDade et al. (US 6,490,324 B1) discloses a system and apparatus for a variable output video decoder.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tung T. Vo whose telephone number is (703) 308-5874. The examiner can normally be reached on 6:30 AM - 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris. Kelley can be reached on (703) 305-4856. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

TUNG T. VO
PATENT EXAMINER

Tung T. Vo
Examiner
Art Unit 2613

T.Vo